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HENRY EDWARDS.

HENRY EDWARDS, the well-known entomologist and actor, died in New York, June 9, 1891. He had been ill for a couple of months previous, and the immediate cause of death was heart failure, due to dropsy. Mr. Edwards was an Englishman by birth, and first saw the light in Herefordshire, England, in 1830. He studied law in early life, but a fondness for commercial enterprise led him into a London counting-house, where Walter Montgomery and John L. Toole were fellow clerks. Amateur acting engrafted professional endeavor, and in connection with Montgomery, Mr. Edwards made his first appearance as "Rudolf," in Byron's *Wonder*. In 1853 he bade farewell to the desk and sailed for Melbourne. Under Mr. Doubleday's auspices he had already commenced the pursuit of insect hunting, and had formed the nucleus of a collection destined to grow in a manner of which he had never dreamed. Mr. Edwards was well known as an actor, having been with different companies in Australia, Peru, Panama, California, Boston, etc. In 1879 he was engaged by the late Lester Wallack as a member of his stock company, and

became stage manager of the theatre. After the disbandment of the Wallack company he again went to Australia as a manager for A. M. Palmer's *Little Lord Fauntleroy* organization, returning last year to join Augustin Daly's company. His last appearance was in New York in the part of "Sir Oliver" in *The School for Scandal.*

As an entomologist, Mr. Edwards will best be remembered by his work on the Lepidoptera of California and the Pacific coast, "Studies on North American Aegeridæ," and his last important contribution, "Bibliographical Catalogue of the described Transformations of North American Lepidoptera." He was a member of many scientific societies, and had many friends and correspondents. Three volumes of "Papilio" were edited by him, after which it passed into the hands of Mr. E. M. Aaron. We present a fine portrait of Mr. Edwards, knowing that he had many correspondents that admired and loved him, yet never had the pleasure of seeing his face.

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THROUGH THE PINAL MOUNTAINS.

By H. F. WICKHAM, Iowa City, Ia.

A week spent in collecting beetles in the Pinal range of mountains proved so enjoyable that the writer feels tempted to write a short account of one of his trips, in order to try to impart to the readers of ENT. NEWS some small part of the pleasure to be gained in the retrospect. In truth, the life of the professional collector in an unsettled or sparsely inhabited country, does not partake to any great extent of the nature of a picnic, as some would have it—hard work, and plenty of it, is his portion when in the field.

The range mentioned may be found on any good map of Arizona, and lies north of Tucson, that part of it which we collected over being included between the Gila and Salt Rivers. To be more exact, our route lay over an old trail from the Gila River, up the cañon of Mineral Creek for some distance, thence across the foot-hills and over the summit of the range, descending on the other side to the mining town of Globe. This course, taking us through several quite distinctly marked belts of vegetation at various altitudes, proved quite productive of insects.

The start was made on horseback, and for a little while most of the attention had to be directed towards the burros, to whose backs the pack had long been a stranger. But with increased sobriety in the burros came increased opportunity for collecting, and we soon had some very pretty things in the cyanide bottle—the first captures being a set of one of our prettiest Chrysomelids, *Urodera crucifera* Lec. They were taken on the wing, having evidently been disturbed by the irresponsible pack animals brushing against the shrubs by the sides of the narrow trail. A few examples of *Megalostomis subfasciata* Lec. were added to our collections in the same way.

Stopping for a mid-day lunch at an abandoned stamp-mill, where a well yielded water enough for the animals, we made a hasty examination of the vicinity with the following results: *Amara californica* and a *Blapstinus*, in great numbers under leaves of Cottonwood, which had drifted into little hollows, a few *Monocrepidius* and an *Esthesopus* or two under boards; one or two examples of *Mycocoryna lineolata* Stal. on weeds with *Exema conspersa*, and an occasional *Euryscopa* or *Pachybrachys*. Not very encouraging yet, but then there were the foot-hills just in front of us, rising one behind the other, each a little higher than the one before it, and covered, as far as we could see, with bear grass and mescal, the latter with its great clusters of yellow, strong-scented flowers lifted high above our heads. On these we hope to find many an interesting insect, and we are not disappointed. First we see one of those curious weevils, *Zygops seminiveus* resting near the end of a mescal leaf, but he loses hold and rolls down the inclined surface until stopped near the axil by the base of the leaf above. As the leaves are very large, stiff, and armed along the edges with stout, curved spines or thorns, it is a delicate piece of work to extricate an insect without lacerating the hand badly, and possibly my method may prove useful to others who have no cutting tool with them but a jack-knife. Cut off the terminal spine first, then run the knife along the full length of the leaf, far enough from the margin to take all the other spines off clean. Now, treat all the other leaves in the same way and the insects are at your mercy. The *Zygops* may be chased from one leaf to another, for they are rather nimble, until in a spot where they can be grasped with the fingers or forceps. Many other beetles are found near the base of the stalk,

either hiding in the axils of the leaves or burrowing in the stalk itself. Among them are the following: *Philophuga amoena*, *Carpophilus floralis*, *Clerus spinolæ*, *Tragidion* sp., *Mecysmus angustus*, *Hymenorus confertus*, *Hyporhagus gilensis* and *Scyphophorus acupunctatus*, the last named boring in and around the bases of the flower-stalk and leaves. At about this altitude we find *Asida parallela* under dead, uprooted plants. The bear-grass furnishes a few examples of *Megalostomis*, and an occasional *Urodera*.

Entering the belt of oak scrub higher up the fauna changes, and the most striking species are small insects living on the leaves, or predaceous; some of them are *Lebia viridis*, *Scymnus marginicollis*, *S. pallens*, *Anthaxia flavimana*, *Pseudebœus bicolor*, *Attalus difficilis*, *Chlamys polycocca*, *Pachybrachys abdominalis*, *Cryptocephalus* n. sp., *Babia tetraspilota*, *Diachus auratus*, *Xanthonia villosula*, *Hemiphrynus intermedius*, *Notoxus bifasciatus*, two or three species of *Apion*, and *Smicronyx seriatus*. These are not all confined exclusively to oak, and some of them probably do not live on it at all, but they may be taken by beating the shrubs, which are in great part some species of oak. On a Leguminous plant (probably a locust) many specimens of a queer ittle Rhynchophore, *Tachygonus centralis*, were captured. The hind legs are strong and saltatorial, though the insect is not as accomplished a jumper as most of our Halticini. At dusk a *Listrochelus* or two, and a single *Polyphylla*, came flying past and were added to the spoils.

After reaching the pine belt proper, there is still another change in the fauna. Here, under logs and slabs, are to be found *Pterostichus lustrans*, *Calathus dubius*, *Platynus brunneomarginatus*, *Chrysomela auripennis*, *Eleodes carbonaria*, *extricata*, *gentilis*, *Embaphion contusum*, *Cœlocnemis punctata*, *Asida macra* and others, while along the little shaded streams *Rhyncheros sanguinipennis* may be seen flying. In and around the piles of slabs left by the lumbermen are numerous lignivorous beetles—*Lucanus mazama*, *Ergates spiculatus*, *Carebara longula*, *Cossonus crenatus*, *Pityophthorus nitidulus*, *Tomicus confusus* and *Hylastes gracilis*. From the small pines and other evergreens a few *Chrysobothris cuprascens* and a *Magdalis* were taken by beating.

Sifting dead leaves in damp places yielded a lot of *Trichopteryx hornii* and *Quedius desertus*. In the little pools were plenty of

Hydroporus vilis and *Agabus lugens*, with occasionally an example of some rarer forms, and on the banks a number of *Bembidium mexicanum*, a not particularly agile species in that climate.

The spot was left with considerable regret, though a scarcity of provisions in the commissary department made this more necessary,—and if the specimens were not so numerous as might be, they were of sufficient interest to more than compensate for any failings in point of numbers.

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Notes on Colias cæsonia.

By Prof. R. R. ROWLEY, Curryville, Mo.

Although *cæsonia* is the rarest species of *Colias* in Missouri, yet it is fairly common some years, especially in localities where its food-plant is abundant. Toward the latter part of May I have taken numbers of it at red clover blossom in July, and August at thistle and milk-weed blooms, and late in Autumn on the flowers of red and white clover. It is as easily taken as *Philodice* or *Eurytheme*, with both of which it associates at flowers, but unlike the males of them, it never frequents damp places, so far as my observations go.

The flight of this butterfly is not noticeably different from that of our other two species of *Colias*, yet the experienced collector is able to detect it on the wing among numbers of other Coliads, even at a considerable distance; the very broad and intensely black border, outlining the peculiar "dog's head" on the top of the primaries, together with the pointed apex of the same wings, doubtless aiding most in the identification. At rest, the roseate underwinged females of October may be known a hundred yards away in a clover-field. The females of the early and midsummer broods differ from those of late Summer and Autumn in the very pale yellow, almost white, color of the underside of all the wings. In August this pale yellow deepens, and in early September reddish streaks appear along the veins of the hind wings beneath, while in October the entire under surface of the secondaries and the tip of the primaries are heavily streaked or solidly red. The broad outer border of black in some females contains a few, more or less distinct, yellow spots, as we see in the female *Eurytheme* or *Philodice*, but a majority of the individuals entirely want these spots, although the border is much less intense than in the males.

The color of the underside of the wings of the male is much deeper in Autumn than in early Summer, being a light orange, and on the upperside of the primaries the fresh males of October have the black outside border well covered with a beautiful dusting of red scales. In examples of August males but a few scattered (red) scales are to be observed, while a careful examination of many specimens taken in early Summer failed to show to the writer a trace of this Autumn feature. However, hand-bred specimens might show it, but as I have reared only late Summer larvæ, I cannot settle the question. Near the base of the front margin of the hind wing in the male is a large, oblong, orange-colored spot of a mealy appearance. I have noticed the same on the male of *Colias eurydice*.

One female, taken in August several years ago, has the ground color of the upperside of the front wings white, an approach to the albino, while on the upperside of the hind wings of many of the October specimens, the dark streaks and shades from the black border reach almost to the base of the wings.

I made the discovery of the food-plant of *cæsonia* a number of years ago by watching a female flitting about some bushes. The eggs of this butterfly are laid on the underside of the tender end leaflets of *Amorpha fruticosa* or "lead plant." They are spindle-shaped, white or pale yellow, growing darker before hatching. The young larva is yellowish green, swollen slightly at the head and thoracic rings and tapering to the anal extremity. After the last molt many of the larvæ become cross striped, while others are almost unadorned. Of the two kinds of grown larvæ, the one I shall designate No. 1 is dark green, with a lateral yellow or white line along the spiracles. An orange band almost entirely covers the pale yellow line, being broadest and most distinct in the middle of each segment. A bluish tinge above and below the stripe is usually noticeable.

The underside of the body is paler than above. On rings 3 and 4 is a black dot, each, just above the stripe. Head green, and covered with short hair. Feet green; whole body covered thickly with small, raised black points. Each ring many wrinkled. Length of mature larva 1¼ to 1½ inches.

The larva No. 2 differs from No. 1 in the cross-bands of black and bright yellow on each segment, reaching the yellow longitudinal line below, and giving the larva a handsome striped appear-

ance. The black cross-bands are either entire or broken into four parts, following the yellow bands as shades to each. Some larvæ have the yellow without the black bands, while a few have the black without the yellow. The pupa is three-fourths of an inch long, plain green, with a pale lateral line. A row of small, dark dots along each side, on the back, and a submarginal row on the wing-cases. Length of pupal period in August is from four to six days. Later in the year it is much longer. Wing-sheaths of pupa humped. Two days before the pupa gives the imago the wings show plainly in miniature, and the dark border of the mature butterfly is here represented by a bright red band, the male being readily distinguished from the female.

I doubt if this species feeds on any other plant than *Amorpha*, as I have never observed the female depositing her eggs on anything else, though many other Leguminous herbs, shrubs and trees grow here.

Even the larger and older shrubs of *Amorpha* do not seem to be inviting to the female, and she frequents fields where the brush has been newly cut away from the banks of brooks, and fresh, tender shoots offer a supply of suitable food for young larvæ. Here she deposits her eggs in great numbers, and here the collector finds a supply of larvæ. Besides *cæsonia*, the caterpillars of *Eudamus tityrus*, *Hyperchiria io;* an undetermined *Limacodes* and another moth feed on *Amorpha fruticosa*, a very abundant shrub along the prairie branches near Curryville.

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Lachnosterna insperata and fraterna.

By JOHN HAMILTON, Allegheny, Pa.

Lachnosterna insperata *Smith.*—The distribution of this species is widely extended; examples are in my collection from Sudbury, Ontario; Buffalo, N. Y.; and from here, as likewise from various places in western Pennsylvania and eastern Ohio. Prof. Smith has it from New Jersey and from Illinois. The ventral characters of the male are variable; the form of the ridge on the penultimate ventral segment of Mr. Smith's type seems to be an extreme in one direction, varying in a large majority of the individuals to that of *dubia*, and an example occasionally occurs which inosculates so closely with some *fuscæ* as not to be sepa-

rable by this character. The typical *insperata* has been in my collection from its first description, but the great mass of the examples were referred to *dubia* without a suspicion. There are before me now forty male and twenty female *insperata*, and ten male and sixteen female *dubia*. By an examination of this series it is easy to see the males of these two species cannot in every case be separated by the ventral characters—that is to say, the writer cannot do it. The genital organs are usually sufficiently distinctive, but to examine every specimen in this way is laborious. The claspers in this species vary greatly in the development of some of the parts, but in all cases observed always retain the same pattern. As to the females, the ventral characters appear to be identical; the last ventral in each is deeply arcuately emarginate, differing from that of *fusca*, which is either transverse at the apex, or scarcely narrowed at its middle; the genitalia, while morphologically different, are yet so similar as to be of little practical avail to the collector. The two species are, however, readily separated by a character of *insperata* not heretofore observed, or at least not recorded (unless *insperata* should prove to be a synonym), namely, the hairiness of the head.

In the males there is conspicuous tuft of long yellow hairs on the front near each eye connected by a line of shorter hairs, which appear to be somewhat deciduous, and in some old examples are nearly lost. In the females the tufts of hairs near the eyes are usually shorter, and in many old specimens may, without care, escape observation, while the connecting line is scarcely present, except in immature or very recent examples.

The females were obtained years ago from two exchanges, labeled *cephalica* Lec., a species described as having 10-jointed antennæ and a hairy head, but placed by Dr. Horn in his recent monograph as a race of *fusca*. As *insperata* is quite variable in the ventral characters of the male as stated above, it seems probable it may be Dr. LeConte's *cephalica*, a matter that might easily be settled by examining the genitalia of the type, a male, which probably still exists in Dr. LeConte's collection. In case they prove to be different, *cephalica* will likely be rehabilitated as a species and grouped with *insperata*.

L. fraterna *Harris.*—This species is abundant here, when its locality is found; last season I took near two hundred examples in a couple of nights' collecting. The figure given by Professor

Smith in his plates of genitalia as the female of this species, is that of *nova* Smith; that of *fraterna* is still unfigured. The pubic process might be likened to a miniature spoon truncated near the tip with the handle much curved and shortly furcate at the end.

ELEMENTARY ENTOMOLOGY.

The young of butterflies and moths are called caterpillars, larvæ or worms. Lepidopterous insects can only be said to grow in the caterpillar condition, and little butterflies never grow to be big ones, as is popularly supposed. When the young caterpillar has matured in the egg it eats its way through the shell and devours more or less of the remaining shell; some species eat a hole only large enough to let them out, and others nearly the entire shell. Some are very slow in eating their way out, sometimes occupying a day or two, as in some of the Hesperidæ. The newly-born caterpillar varies in size from a very minute object to about one-quarter inch in length, according to the size of the species. They are very voracious, and grow rapidly, changing their skins or moulting to accommodate their increase in size. They are elongated, cylindrical, worm-like; some are naked and others covered with hair. They are separable into thirteen joints or segments, including the head. They have three pairs of short legs, a pair on the second, third and fourth segments respectively, and on joints seven, eight, nine, ten and thirteen have each a pair of membranous legs armed with a circle of minute hooks which enables them to hold on to objects. In certain large species these are wrapped entirely around a small twig or branch of the tree on which they feed. These last legs disappear when the larva changes to a chrysalis. They breathe by means of stigmata or spiracles, which are breathing holes situated on each side of the body, which communicate with the respiratory system. When, after feeding some days, the larva gets too big for his skin he seeks a convenient place and spins a little web, in which he entangles his feet and remains quiet for a short period, and then crawls out of the old skin and has an entirely new suit of clothes, often varying greatly from the old one. This he does a varying number of times according to the species, but it is usually four or five, but may be as high as ten. Some of the species of *Pam-*

phila undergo this change in a little tube of silk, which they spin for the purpose. When the caterpillar reaches full growth it seeks a place in which to change into a chrysalis or pupa. Some species change to a naked chrysalis; some spin a cocoon inside of leaves or sticks; others make merely a cocoon in which to transform, and quite a number enter the ground and wriggle around until they harden the sides of their grave or tomb until it is virtually a cocoon in the ground.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

In the future all papers received for publication in the News will be printed according to date of reception.

EXTRAS of Plate VI (portrait of Henry Edwards), on heavy paper suitable for framing, can be supplied at twenty-five cents each. Send order to Treasurer, E. T. Cresson, P. O. Box 1577, Philadelphia, Pa.

THE new Check List of North American Lepidoptera by Prof. J. B. Smith, will soon be completed. This includes Diurnals and Nocturnals. The price will be $1.00. Send in your order early to E. T. Cresson, Treasurer. See notice on second page of cover.

INTERNAL REVENUE PROBLEMS.—Truth is often much funnier as well as stranger than fiction. An important public officer of Duisberg, in Germany, is an ardent entomologist, and made a costly purchase of rare butterflies in Holland. The collection arrived in due time at the Duisberg custom-house, where the inspectors were at a loss to know whether the insects were dutiable or not. They finally came to the conclusion that, inasmuch as they had wings, they must be classed as poultry, and much explanation and expostulation were required before they could be induced to regard them in any other light.—*Clipping*.

THE collection of insects made by the late Henry Edwards, consisting of about 300,000 specimens of all orders, and well represented in large numbers of individuals and long suites of specimens from all parts of the world, is for sale. It is particularly rich in Pacific coast of North America species. A large number of Lepidoptera from this region were described by Mr. Edwards, and his types are in the collection. Institutions or private persons wishing to purchase will please address Mrs. Henry Edwards, 185 E. 116 Street, New York, N. Y.

On May 29th, near midnight, with temperature at 50° Fahr. at Franconia, N. H., Mrs. A. T. Slosson took another fine ♀ specimen of *Phragmatobia assimilans*, var. *franconia* Slosson.

The Entomological Society of Belgium, at its meeting of May 2, 1891, discussed the question of the value of types in Entomology. The majority of the members present expressed their ideas on the subject. The result of the discussion was that *only those specimens should be considered as types of a species which have served to fix the description.* All the individuals which an entomologist afterwards recognizes as belonging to a species established by him are not veritable types; they ought to have in a collection only the note *compared with the type by the author* with the date of the determination.—From the Compte Rendu. of the Society for May 2, 1891, p. ccxlvi.

The annual field-meeting of entomologists, under the auspices of the societies of Philadelphia, Brooklyn and Newark, was held on July 4th at Jamesburg, N. J., which is situated near Monmouth Junction on the Amboy Division of the Pennsylvania Railroad. The societies represented were the Feldman Collecting Social, American Entomological Society and Entomological Section of the Academy of Natural Sciences, all of Philadelphia; the Brooklyn Entomological Society and the Newark Entomological Society. It was feared that the hail storm of the previous evening would somewhat interfere with the pleasures of the day, but the bright sunshine of the early morning brought sunshine into the hearts of the ardent collectors, for Jamesburg is well known to be a favorite collecting-ground. The party was met at the Jamesburg Station by conveyances and taken about a mile to a beautiful grove, bordering the cranberry meadows, where, after a photographer had secured a picture of the entire party, the day was spent in collecting. Ample lunch was provided and eaten under the shade of the trees in the pretty grove. About forty persons were present, among whom were H. Wenzel, P. Laurent, Dr. Castle, Schmitz, Trescher, Hoyer, E. Wenzel, C. Boerner, I. C. Martindale, Liebeck, Fox, C. W. Johnson, P. Nell and H. Skinner, of Philadelphia; Jas. S. Johnson, of Frankford, Phila.; and Messrs. Machesney, Angell, Loeffler, Angelman, Sherman, Thompson, Ottolengui, Leng, Merkel, Roberts, Pearsall, Davis, Baier, Hess, Dietz, Sieb and Julich, of New York, Newark and Brooklyn. The party was looked after by Prof. J. B. Smith, of New Brunswick, State Entomologist. The second annual meeting was a great success, and it is hoped that many more may follow.—I. C. Martindale.

The following are clipped from the daily papers:

How two insects talked.—A Parisian chemist has caught two little insects in the act of nocturnal "spirit" rapping. They were found about four inches apart on opposite sides of a piece of heavy wrapping paper. Each tapped loudly with the head about six strokes a second, one answering as the other finished.

AFRICAN travelers tell of a "delicious soup" of beetles and mushrooms made by the natives of that remarkable country.

THE fly is a quaint humorist. He can tickle a man in more places at once than the best paid funny man going.

Now fares it sadly with the man
Whose soul doth patience lack,
When he to smite fugacious flies
Himself doth fiercely whack.

A PROFESSOR at Ann Arbor was discussing the process of fertilizing plants by means of insects carrying the pollen from one plant to another, and told how old maids were the ultimate cause of it all. The bumble-bees carry the pollen; the field-mice eat the bumble-bees; therefore, the more field-mice the fewer the bumble-bees and the less pollen and variation of plants. But cats devour field-mice, and old maids protect cats. Therefore, the more old maids the more cats, the fewer field-mice, the more bees. Hence, old maids are the cause of variety in plants. Thereupon a sophomore, with a single eyeglass, an English umbrella, a box-coat, with his trousers rolled up at the bottom, arose and asked: "I sa-a-y, Professah, what is the cause—ah—of old maids, don't you know?" "Perhaps Miss Jones can tell you," suggested the Professor. "Dudes!" said Miss Jones, sharply, and without a moment's hesitation.

A YOUNG man camping in the Sierras discovered and captured a butterfly of an unknown species. He sent it to the Smithsonian Institution at Washington, and received therefor a check for fifteen hundred dollars, with the request to make careful search for other moths of the same kind. It was an individual of a fossil species, supposed to be extinct, and great was the excitement among the scientists at the discovery that one of the race had been recently alive. Although diligent search has been made by men paid for the service, no other specimen has been found.

"WILL you walk into my parlor?" said the spider to the fly.
Well, hardly," said the insect, as he winked the other eye.
"Your parlor has an entrance, but of exits it is shy,
So I'll stay outside in safety and remain a little fly."

"AN INNOVATION."—That was a great jewel Mrs. De Jones had on last night. "What was it?" "It was a live brazilian beetle with a big diamond strapped on its back. It was trained to fly around her neck, thus giving the effect of a diamond necklace."

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

ANNALS AND MAGAZINE OF NATURAL HISTORY, May, 1891.—Descriptions of new genera and species of Pyralidæ contained in the British Museum collection, by W. Warren. Descriptions of new species of the coleopterous genus *Oides*, by C. J. Gahan. Description of a new genus for the reception of the North American moths hitherto referred to *Telesilla* of Herrich-Schäffer, by A. G. Butler.

CONTRIBUTIONS TOWARD A MONOGRAPH OF THE NOCTUIDÆ OF TEMPERATE NORTH AMERICA.—A revision of the species of *Hadena* referable to *Xylophasia* and *Luperina*, by J. B. Smith.—From Proc. U. S. National Museum, vol. xiii, pp. 407–447.

THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON for the year 1891, pt. 2, with 8 plates.—A monograph of the Lycænid genus *Hypochrysops*, with descriptions of new species, by Hamilton H. Druce. Notes on the Lepidoptera collected in Madeira, by the late T. Vernon Wollaston, by George T. Baker. Additions to the Carabideous fauna of Mexico with remarks on some of the species previously recorded, H. W. Bates. On the genus *Xanthospilopteryx* Wallengren, by W. F. Kirby. The Rhynchophorous Coleoptera of Japan. Pt. 2, Apionidæ and Anthribidæ, by Dr. David Sharp. The life-history of the Hessian Fly, *Cecidomyia destructor* Say, by Fred. Enock. Mimetic resemblances between species of the coleopterous genera *Lena* and *Diabrotica*, by C. J. Gahan. A list of the Heteromerous Coleoptera collected by J. J. Walker in the region of the Straits of Gibralter, with descriptions of four new species, by G. C. Champion.

THIRD ANNUAL REPORT OF THE WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION.—This contains a valuable report on noxious and beneficial insects of thirty-five pages with two plates, by A. D. Hopkins, entomologist to the station.

THE BRITISH NOCTUÆ AND THEIR VARIETIES, by J. W. Tutt, F. E. S., vol. i, May, 1891, with catalogue of the subclasses, families, genera, species, varieties and principal subvarieties. This is a work of 164 pages by one who has made a study of the causes of variation in Lepidoptera, a subject which of late has received considerable attention, especially in England. The literature of varieties had been greatly scattered through numerous periodicals and other works published in different countries, and in this volume there are collected together for ready reference by the student. A careful study and comparison of the different forms of a species can't fail to be very useful in determining their exact limitations and thus help to solve the problem as to what shall be considered a species. The subject of variation is rapidly acquiring a literature of its own, and the author of this work is also the editor of a journal entitled, "The Entomologist's Record and Journal of Variation." Mr. Tutt is anxious to correspond with any one in this country interested in the subject.

"THE OBSERVER," devoted to Natural History, Popular Science, Education and General Literature, edited by E. F. Bigelow, Portland, Ct. This interesting journal has a department devoted to Entomology under A. W. Pearson, of Norwich, Conn. Vol. ii, No. 7, contains a table of Geometridæ for determining the species, An editorial outing, an enemy of mosquitos. The price is fifty cents per annum.

MANUAL OF NORTH AMERICAN BUTTERFLIES, by C. J. Maynard (De Wolfe, Fiske & Co., Boston, 1891). This work brings together for the first time descriptions of all the butterflies which occur in America North of Mexico. The literature on Lepidoptera is so scattered that only those who have access to large natural history libraries, or are happy enough to own an extensive library of their own, can hope to identify their specimens for themselves, and this book is intended for those who do not have these facilities. All the species listed by Mr. W. H. Edwards in his catalogue of 1884 are described, and some of those described since are noted in an appendix. There are ten colored plates with about sixty figures and numerous wood-cuts of about two hundred and fifty species illustrating some peculiar character by which the insect may be known. The scheme of the work is a very good one, and it can't fail to be useful, although there are certain faults. Comparative descriptions are only of value when specimens are at hand, and it would be exceedingly difficult to identify from many of the descriptions without a large amount of material, which the beginner does not have. A number of errors have crept in, the most noticeable of which is on plate 5, fig. 1, which represents the underside of *Synchlœ janais* of Drury and not *adjutrix*.

DESTRUCTIVE LOCUSTS.—A popular consideration of a few of the more injurious locusts (or "grasshoppers") of the United States, together with the best means of destroying them, by C. V. Riley, U. S. Dep't Agric., Div. Ent., Bulletin No. 25.

REPORT OF THE ENTOMOLOGIST FOR 1890, by C. V. Riley, U. S. Dep't Agric., 26 pages, 7 plates. Contains articles on noxious insects, with remedies against them.

CENTRAL EXPERIMENTAL FARM, DEPARTMENT OF AGRICULTURE, Ottawa, Canada, Bulletin No. 11, May, 1891.—Recommendations for the prevention of damage by some common insects of the farm, the orchard and the garden, by James Fletcher, entomologist and botanist to Dominion Experimental Farms.

NOTES ON SOME NOCTUIDÆ, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES, by John B. Smith, pp. 103–135. From Trans. Am. Ent. Soc. for 1891.

BULLETIN 82, NEW JERSEY AGRICULTURAL EXPERIMENT STATION, by Prof. J. B. Smith. Experiments for the destruction of the Rose-chafer, or Rosebug.

REVISION OF *Homohadena* Grote, by Prof. John B. Smith. From Proc. U. S. National Museum, vol. xxiii, pp. 397-405.

HOST-PLANT LIST OF NORTH AMERICAN APHIDIDÆ, by T. A. Williams. Special Bulletin No. 1. University of Nebraska, Dep't of Entomology.

AN UNDESCRIBED LARVA FROM MAMMOTH CAVE, by H. Garman. From Bulletin of the Essex Institute, vol. xxiii, 1891.

U. S. DEPARTMENT AGRICULTURE, DIVISION OF ENTOMOLOGY, Bull. 23.—Reports and observations in the practical work of the Division made under the direction of the entomologist. Contains articles on injurious insects, by Lawrence Bruner, D. W. Coquillett, Albert Koebele, Mary E. Murtfeldt, Herbert Osborn and F. M. Webster.

NOTES ON NORTH AMERICAN MYRIAPODA OF THE FAMILY GEOPHILIDÆ, WITH DESCRIPTIONS OF THREE GENERA, by O. F. Cook and G. N. Collins, of Syracuse, N. Y. From Proc. U. S. National Museum, vol. xxiii, pages 383-396.

COLLECTING AND PRESERVING INSECTS, by Dr. W. J. Holland, 33 pp. with a number of plates and cuts. This comprises the article on insects in "Taxidermy and Zoological Collecting," by W. T. Hornaday. This article is by a practical entomologist, and will be a useful guide to the subject. Such articles are generally written by Taxidermists who know little about the subject.

ATTI DELLA SOCIETA VENETO-TRENTINA DI SCIENZE NATURALI RESIDENTE IN PADOVA, xii, fasc. 1, 1891.—Contribution to the embryology of the Acari, by Dr. E. Sicher.

SITZUNGSBERICHTE D. KONIG. BOHMISCHEN GESELLSCHAFT DER WISSENSCHAFTEN. MATHEMATISCH-NATURWISSENSCHAFTLICHE CLASSE, '90, II.—The metamorphic stages of *Oxyethira costalis* Curt., and a paper on Bohemian Trichoptera,* by F. Klapalek, plates; Bohemian Thysanura,* by J. Uzel.

JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE, etc., Paris, xxvii, No. 2, 1891.—Brief genealogy of the Arthropoda: Determination of the typical forms (continued), by Dr. L. A. Segond.

BIOLOGISCHES CENTRALBLATT (Erlangen), May 1, 1891.—On the embryonal plan of the blood and fat tissues of insects, and remarks on J. Carriere's paper on "The Glands of the first abdominal segment of the insect embryo," by V. Graber.—July 1, 1891. Preliminary remarks on the "International Relations" of Ant guests, by E. Wasmann.

ZOOLOGISCHER ANZEIGER, May 11 and 25, 1891.—On the extremities in the embryos of Arachnids and Insects, by Dr. A. Jaworowski.

REVUE DES SCIENCES NATURELLES DE L'OUEST (Paris), No. 2, April, 1891.—The sense of sight in Arthropods, by Dr. A. Peytoureau.

* Contains new species other than North American.

LE NATURALISTE (Paris), May 15, 1891, etc.--New Lepidoptera,* by P. Dognin; *Gaujonia* n. gen.—June 1. The nymph of *Telephorus rufipes*, by L. Planet; figs.

ENTOMOLOGISCHE NACHRICHTEN, xvii, No. 9, May, 1891.—*Brachycryptus* n. gen. Cistelidæ near *Omophlus*,* and A new *Glaphyrus* from Tripoli,* by G. Quedenfeldt. Triphonid studies,* by Dr. Kriechbaumer. A new contribution to the knowledge of the indigenous Coleoptera in Bucovina, by C. V. Hormuzaki.—No. 10, May: *Acronycta* var. *Bryophiloides*, a new variety of *A. strigosa* F.,* by C. V. Hormuzaki. A new Crabronid,* by C. Verhoeff.—No. 11, June: *Rhizotrogus limbatipennis* Villa = *furvus* Germar, by Dr. G. Kraatz. Cryptid studies,* by Dr. Kriechbaumer. A later contribution to the knowledge of indigenous Coleoptera of Bucovina, by C. V. Hormuzaki.—No. 12, June: Diptera from the vicinity of Treparewo, by B. Fedtschenko. Two new species of *Macrophya*, by Dr. Kriechbaumer.—No. 13 July: On *Dorcadion læve* Fald., by K. M. Heller. Diptera from the vicinity of Treparewo, by B. Fedtschenko.—No. 14, July: On *Orellia schineri* Lw., by V. v. Roder. On *Polyphylla*, *Anoxia* and *Cyphonotus;* Three new species of *Rhizotrogus* from the Orient;* On *Rhizotrogus ater*, *fuscus*, *furvus* and *limbatipennis*, by E. Brenske. The Zoocecidæ of Lorraine, by S. S. Kieffer.

COMPTE RENDU. SOCIETE ENTOMOLOGIQUE DE BELGIQUE May 2, 1891.—Causeries Odonatologiques, No. 4: the genera *Zygonyx* Selys and *Schizonyx* Karsch, by E. de Selys-Longchamps. Description of a new genus of Elateridæ,* by E. Fletiaux; *Globothorax*. Additions to the "Catalogue Methodique des Elaterides connus en 1890, par E. Candéze," by E. Bergroth. Clavicorns from Western Bengal,* by A. Grouvelle. Melanges Entomologiques, III, Diagnoses of Madagascan Phytophaga,* by A. Duvivier. Second note on some Coleoptera Heteromera of Belgium, by L. Coucke.

ZOOLOGISCHE JAHRBUCHER, v, No. 5, Jena, 1891.—Contributions to the biology of the solitary flower wasps (Apidæ), by H. Friese; 1 plate.

ENTOMOLOGISKE MEDDELSER, ii, Nos. 5, 6, Copenhagen, '90.—*Phlœphthorus rhododactylus* Marsh, by E. A. Lovendal, figs. Synonymic remarks, etc., on Danish Tomicini, ibid. *Aenigmatias blattoides*,* a new apterous Dipter, by F. Meinert; 1 plate. Catalogue of Danish Coleoptera: Staphylinidæ, id. New Danish Coleoptera and Hemiptera, by W. Schlick. New Danish Lepidoptera, by H. P. Duurloo.

ABHANDLUNGEN, NATURWISSENSCHAFTLICHEN VEREIN ZU BREMEN, xii, No. 1, 1891.—Contributions to the fauna of the island of Spiekerooge, by S. A. Poppe. Biological observations on the relations between flowers and insects in the East Frisian Island of Norderney, by C. Verhoeff. First contribution to the insect fauna of the North Sea island of Juist, by Dr. Alfken.

* Contains new species other than North American.

BULLETIN DE LA SOCIETE PHILOMATHIQUE DE PARIS, 3e serie, iii, No. 1, 1891.—On the locomotion of Arthropods, and Note on the lyriform organs of Arachnids, by P. Gaubert.

ARCHIV FUR NATURGESCHICHTE, lvii, I, No. 1, Berlin, 1891.—On the origin and cause of the absence of wings in the females of many Lepidoptera, by L. Knatz; 1 plate.

BULLETIN DE LA SOCIETE LINNEENNE DE NORMANDIE, 4e serie, v, 1. Caen, 1891.—Note on *Phalena hyemata*, parasite on the apple tree, by Drs. Huet and Louise.

MONITORE ZOOLOGICO ITALIANO, ii, 5, Florence, 1891.—Anatomico physiological note on some Ixodini, by A. Batelli.

MITTHEILUNGEN AUS DEM NATURHISTORISCHEN MUSEUM IN HAMBURG, viii, 1891.—Revision of the scorpions, I. Fam. Androctonidæ, by Dr. K Kraepelin; 2 plates; new genera and species.

ARCHIVES DE BIOLOGIE, x, 4, Paris, etc., 1891.—Researches on the walk of insects and Arachnids, by J. Demoor; 3 plates.

COMPTE RENDU. L'ACADEMIE DES SCIENCES (Paris), July 6, 1891.—The Flight of Insects studied by Photochronography, by M. Marey.

STAVANGER MUSEUM, AARSBERETNING for 1890, Stavanger, 1891 (?).—Contribution to the knowledge of Norse Coleopterous Fauna,* by T. Helliesen. List of Coleoptera (Carnivori, Palpicornes and Amphibii) found near Jaederen in 1890, id.

VERHANDLUNGEN DES NATURHISTORISCHEN VEREINS DER PREUSSICHEN RHEINLANDE, WESTFALENS UND DES REG.-BEZIRK OSNABRUCK, xlvii, Bonn, 1890.—The gall-flies and galls of Siegerland,* by E. H. Rubsaamen; 4 plates. A fourth German species of *Atypus*, by Dr. P. Bertkau.

SOBRE LA CARPOCAPSA SALTITANS WESTW. Y LA GRAPHOLITA MOTRIX BERG. n. sp.* por el Dr. Carlos Berg.—Extract from Anales Sociedad Cientifica Argentina xxxi, 1891.

REVUE SCIENTIFIQUE DU BOURBONNAIS, 4e, Annee, No. 6, June, 1891.—The Orthoptera of the Allier, by E. Olivier.

BOLLETINO DEI MUSEI DI ZOOLOGIA ED ANATOMIA COMPARATA D. R. UNIVERSITA DI TORINO, Nos. 94, 97, 102, 1891.—New species of Diptera from the Zoological Museum of Turin,* by Dr. E. Giglio-Tos; No. 102 contains twelve new Mexican species of various genera.

MITTHEILUNGEN DER NATURFORSCHENDEN GESELLSCHAFT IN BERN, Nos. 1244–1264, 1891.—Contribution to the Tipulid Fauna of Switzerland,* by Dr. E. Bergroth.

UTILITE DES ABEILLES EN HORTICULTURE; par V. Brandicourt, Amiens, 1891.

* Contains new species other than North American.

COMPTE RENDU. SOCIETE DE BIOLOGIE (Paris), June 20, 1891.—On the abdominal nerve chain of *Melolontha vulgaris*, by A. Binet. Fungi parasitic on *Acridium*, by J. K. d'Herculais, C. Langlois, A. Girard. July 9: The disposition of the connectives in sub-intestinal nerve chain of *Melolontha vulgaris*, by A. Binet.

ARCHIVES ITALIENNES DE BIOLOGIE, XV, 2, Turin, 1891.—Spermatogenesis of *Bombyx mori*, by E. Verson. The glandular hypostigmatic cells in *Bombyx mori*, by E. Verson and E. Bisson.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE, iii, 10, July, 1891.—The wax of Bees, by A. and P. Buisine.

IL NATURALISTA SICILIANO (Palermo), x, 6, 7, March, April, 1891.—Two new Hymenoptera from Sicily, by T. De-Stefani. Catalogue of the Coleoptera of Sicily, by E. Ragusa.

VERHANDLUNGEN DES NATURFORSCHENDEN VEREINES IN BRUNN, xxviii, 1890.—Identification table of the Hydrophilidæ of Europe, West Asia and North Africa, by A. Kuwert.

JENAISCHE ZEITSCHRIFT FUR WISSENSCHAFT, XXV, 3, 4, Jena, 1891.—Honeydew: A biological study on plants and plant-lice, by Dr. M. Büsgen; 2 plates.

ARBEITEN AUS DEM ZOOLOGISCH-ZOOTOMISCHEN INSTITUT IN WURZBURG, X, 1, Wiesbaden, 1891.—On the genital characters of insects, by F. Leydig; 2 figures.

ARBEITEN AUS DEM ZOOLOGISCHEN INSTITUTE DER UNIVERSITAT WIEN UND DER ZOOLOGISCHEN STATION IN TRIEST, ix, 2, Wien, 1891.—The coxal glands of the Arachnoidea, by R. Sturany; 2 plates.

BIBLIOTHECA ZOOLOGICA II: Verzeichniss der Schriften über Zoologie welche in den periodischen Werken enthalten und vom Jahre, 1861–1880, selbstandig erschienen sind, . . . von Dr. O. Taschenberg, 9te lieferung signatur 321–360, Leipzig, Engelmann, 1891.—A list of the writings on Zoology from 1861 to 1880, which have appeared separately or in periodical journals. This lieferung finishes the insects (Coleoptera), includes the Molluscoidea, and begins the Mollusca.

MATERIAUX POUR LA FAUNE ENTOMOLOGIQUE DU LIMBOURG. COLEOPTERES, 4me Centurie, par A. P. de Borre, Hasselt, 1891.

Doings of Societies.

A REGULAR STATED MEETING OF THE ENTOMOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES was held at the Hall, S. W. cor. Nineteenth and Race Streets, May 28, 1891, Dr. Horn, Director, in the chair. Members present: Cresson, Martindale, Laurent, Skinner, Bullock and Ridings; Associates: Seeber, Johnson, Fox, Westcott and Nell; Mr. Bird, of Rye, N. Y., visitor. A paper entitled, "Revision of the genera and

species of Anthonomini of Boreal America," by W. G. Dietz, M.D., was presented for publication. Mr. Martindale stated that five volumes of Kirby's Catalogue of Heterocera were in press. Dr. Skinner spoke of the importance of the work, and said it would greatly stimulate the study of the moths. Mr. Martindale also discussed the question of the proper classification of Diurnal Lepidoptera, and mentioned some of the classifications now in use. Dr. Horn said that a working collection should be arranged for convenience of study. Dr. Skinner exhibited a caterpillar and chrysalis of *Danais archippus;* the former transformed into a chrysalis during the meeting. Mr. C. W. Johnson, exhibited the Diptera which he had recently collected in Jamaica. He had found different species represented on the north and south sides of the island. Some of the species captured he had also taken in Florida. Insect life was scarce at Kingston on account of the dry weather, but insects were more abundant at Port Antonio, where the rainfall is usually greater. The natives stated that collecting was best during the month of July. He took about ninety-seven species, which were exhibited. Mr. W. J. Fox exhibited the Hymenoptera collected in Jamaica; they numbered ninety-one species, fifteen of which were probably new to science. One torn specimen of *Papilio homerus* had been seen. Mr. Martindale read an extract from a paper by Dr. Leidy, published some years ago, on "Insects Injurious to Shade Trees." He also spoke of the scarcity of insects at the present time. Dr. Horn stated that he was about finishing his paper on *Agrilus.*—Meeting held June 8th, Dr. Horn presiding. Members present: Ridings, Bullock, Blake, Martindale, Skinner; Associates: Calvert, Fox, Westcott, Johnson, Nell. A paper on Jamaica Hymenoptera by Wm. J. Fox, was presented for publication. Dr. Horn stated, in regard to his paper on *Agrilus*, that he had about decided to discard a certain species from the list, specimens of which were in the collection of the Society and his own received from the late Mr. Wilt. Having received the same species from Dr. Riley, with the authentic label Florida, it must be included. He had at first thought the species, from its appearance, was probably exotic. He also mentioned seeing in Mr. Seeber's collection a specimen of *Agrilus walsinghami* labeled Texas, and doubted the locality being correct, as the home of the species was in the Northwest. He had recently received specimens from some of the intermediate points, thus showing that the southern locality was probably correct. Mr. Martindale spoke of a note in the June number of the NEWS, p. 122, that *Psyche confederata* had been found in abundance at Columbus, Ohio, by Prof. Kellicott. Mr. M. had found it in some numbers back of George's Hill in Fairmount Park, Philadelphia.

HENRY SKINNER, *Recorder.*

THE ENTOMOLOGICAL SOCIETY OF WASHINGTON.—January 8, 1891. The annual meeting of the Society was held at the residence of Prof. C. V. Riley, and the officers for the past year were re-elected, as follows: President, George Marx; Vice-Presidents, C. V. Riley and L. O. Howard; Corresponding Secretary, C. H. Tyler Townsend; Recording Secre-

tary, C. L. Marlatt; Treasurer, B. P. Mann; Executive Committee, E. A. Schwarz, Otto Heidemann, W. H. Fox. The President, Dr. Marx, delivered an address on "The Spiders of the District of Columbia," in which he discussed at length the value of local lists as a means of forming a comprehensive knowledge of the fauna of a country. He referred to the somewhat scanty literature in this country of this nature as compared with that of Europe, giving also a bibliography of the more important writings on Araneæ of both this country and Europe, and concluded with a list of the spiders found to occur in the District.

The address was discussed by Messrs. Riley, Fernow, Marx, Schwarz, Smith, Dodge, Banks and others.

The thanks of the Society was voted Dr. Marx for his address.

February 5, 1891.—Mr. Schwarz called attention to certain Micro-lepidoptera which bred in the fruit of *Solanum carolinense*, stating that he had bred *Gelechia beneficentella*, and referred to the fact that no similar insects were known to breed in the fruit of cultivated potato.

Dr. Marx spoke of the spiders of the genus *Pholcus*, of which nine species occur in this country as against one or two found in Europe. He exhibited specimens of the American species.

Mr. Schwarz exhibited specimens of *Casnonia ludoviciana* found this Winter in great abundance near Washington, D. C., and remarked on the distribution and habits of this insect.

Prof. Riley laid before the Society an interesting card which he had recently received from Mr. McLachlan referring to the *Plepharocerid* larvæ mentioned at the previous meeting of the Society. Mr. McLachlan fully confirmed Prof. Riley's reference of the larvæ in question.

Mr. Townsend read a paper on a remarkable new Hippoboscid received from Dr. Alfredo Duges, Guanajuato, Mexico, which had been taken on a bat. It was described as *Trichobius* n. gen. *dugesii* n. sp.

Mr. Townsend also presented a paper on a Muscid, bred from swine dung, which he described, in its larval and imago stages, as *Cleigastra suisterei* n. sp. This case of breeding had shown a larval hibernation, and Mr. Townsend expressed the belief that in more northern latitudes most coprophagus Diptera (*Hæmatobia*, *Lucilia*, etc.) winter equally as larvæ or pupæ, and only exceptionally as perfect flies.

These papers were discussed by Messrs. Riley, Fox, Banks, Schwarz, Marlatt and Townsend.

C. L. MARLATT, *Recording Secretary*.

ENTOMOLOGICAL NEWS for June was mailed May 29, 1891.